

What is claimed is:

1. A damping device comprising a housing and a flange member for damping arranged in the housing, wherein at least portions of the flange member apart from a center thereof are composed of an elastic material and inclined with respect to an axial direction or a radial direction of a rotational axis and wherein the flange member is so designed that a peripheral face thereof is brought into contact with an inner wall of the housing.
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2. The damping device as set forth in claim 1, wherein at least the portions of the flange member, which are brought into contact with the inner wall of the housing, are produced from a self-lubricating rubber material.
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3. The damping device as set forth in claim 1 or 2, wherein the damping device is a direct acting type one and wherein the device is so designed that the device comprises the housing, a piston rod capable of undergoing reciprocating motions within the housing and the flange member for damping made of an elastic material and fitted to the piston rod, that the flange member is tapered towards peripheral edges on its both sides opposed to one another and that the peripheral face of the flange member is thus pressed against the inner wall of the housing.
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4. The damping device as set forth in claim 3, wherein the flange member has such an outer diameter that the inner wall of the housing is pressed against the peripheral face of the flange member, at the static state of the piston rod, and these members are thus in a press contact condition.
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5. The damping device as set forth in claim 3 or 4, wherein the flange member is characterized in that a part thereof apart from its center is formed into a unidirectionally inclined shape.
- 25 6. The damping device as set forth in any one of claims 3 to 5, wherein the flange member is secured to the piston rod in such a manner that, when the piston rod at its stationary position moves within the housing along and towards a direction A or towards one end of an axial direction, the peripheral face of the flange member is stopped with respect to the inner wall face of the housing due to an action of frictional force generated between these faces to thus inhibit a movement thereof towards the direction
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A and to thus cause desired damping.

7. The damping device as set forth in any one of claims 3 to 6, wherein the flange member is secured to the piston rod in such a manner that, when the piston rod at its static state moves within the housing along and towards a direction B or an end of an

5 axial direction opposite to a direction A, any press contact force is not generated due to any deflection of the flange member and, in its turn, any damping is not generated.

8. The damping device as set forth in any one of claims 3 to 7, wherein the flange member is secured to the piston rod in such a manner that, when the piston rod at its

stationary position moves within the housing along and towards a direction A or towards

10 one end of an axial direction, the peripheral face of the flange member is stopped with respect to the inner wall face of the housing due to an action of frictional force

generated between these faces to thus inhibit a movement thereof towards the direction A and to thus cause desired damping and that, when the piston rod at its static state moves within the housing along and towards a direction B or an end of an axial

15 direction opposite to the direction A, any press contact force is not generated due to any deflection of the flange member and, in its turn, any damping is not generated.

9. The direct acting type damping device as set forth in any one of claims 3 to 8, wherein the device is attached to front suspensions for bicycles.

10. The damping device as set forth in claim 1 or 2, wherein the damping device is a

20 rotary damping type one, the rotary damping device comprises a housing secured to one outward member and a flange member for damping which is so arranged that it is rotatable within the housing and has an engaging portion allowing the engagement with a shaft body fixed to an another outward member so that differential rotary movements

of these two outward members can be damped, wherein the flange member comprises

25 an engaging member allowing the engagement with the shaft body, the engaging member is provided with convex portions made of an elastic material on an outer periphery thereof, and the convex portions are so designed that the portions are inclined with respect to a radial direction of a rotary shaft and pressed against the inner wall face of the housing.

30 11. The damping device as set forth in claim 10, wherein the flange member is

characterized in that the engaging member and the convex portions are integrally molded.

12. The damping device as set forth in claim 10 or 11, wherein the housing and the flange member are so arranged that the housing generates rotational resistance with respect to the flange member when the housing rotates relative to the flange member in a direction opposite to a radial direction of the inclined convex portions formed on the flange member to thus damp the differential rotary movements generated between the housing and the flange member.

13. The damping device as set forth in any one of claims 10 to 12, wherein the housing and the flange member are so arranged as to generate rotational resistance lower than that generated in a direction opposite to a radial direction of the inclined convex portions formed on the flange member when the housing rotates relative to the flange member in a direction identical to the radial direction.

14. The damping device as set forth in any one of claims 10 to 13, wherein at least tips of the convex portions are formed on the flange member such that the portions are inclined with respect to an axial direction.

15. The damping device as set forth in any one of claims 10 to 14, wherein the one outward member is a main body of a bicycle and the another outward member is a rear wheel-supporting member thereof or the one outward member is a rear wheel-supporting member of a bicycle and the another outward member is a main body thereof, and the rotary damping device is attached to a suspension of a bicycle.

16. The damping device as set forth in any one of claims 10 to 15, wherein the device is attached to a rotating mechanism for an opening and closing member.